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NASA Procedural Requirements

COMPLIANCE IS MANDATORY

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(NASA Only)

Subject: Technical Standards for NASA Programs and Projects

Responsible Office: Office of the Chief Engineer

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Chapter 4. Development of Technical Standards Products

4.1 NASA Participation in Standards Development with Voluntary Consensus Standards Bodies and Other Government Organizations

4.1.1 NASA Headquarters offices shall determine, when a need is identified, if a voluntary consensus standard or other Government standards product exists or is in development that meets or can be adapted to meet NASA's needs.

4.1.2 NASA Headquarters offices, Center Directors, or designees shall endorse participation of their employees in the development of voluntary consensus and other Government standards products in areas where participation is in the public interest and is compatible with NASA's mission, authorities, and budget resources.

4.2 Development of NASA Technical Standards Products

4.2.1 Criteria for development of NASA Technical Standards products.

4.2.1.1 NASA Headquarters offices that produce NASA technical standards products shall approve development of new NASA technical standards products when warranted and the following criteria are met:

a. Search for and evaluation of similar technical standards products have determined that established voluntary consensus standards or other Government technical standards products do not exist, are not in development, or cannot be adapted (tailored)

to meet NASA's technical needs;

b. All basic research and testing have been completed to promote development of the technical standards product within a 12-month timeframe and within allocated budget unless an extension and/or additional budget are approved by the NASA Headquarters office producing the technical standards product;

c. A technical standards product is necessary to establish an Agency-wide level of control over practices and processes that have been identified, such as problem areas or areas contributing to past incidents, near misses, failures, or reduced mission capability;

d. A technical standards product is necessary to capture NASA-unique best practices, needs, and significant lessons learned; and

e. The proposed technical standards product will be used by multiple NASA Centers and/or multiple programs/projects that perform the specific technical discipline.

4.2.2 An Agency-wide review of NASA Technical Standards products.

4.2.2.1 NASA Headquarters offices shall conduct Agency-wide technical reviews for adequacy and accuracy of each proposed document.

4.2.3 Disposition of comments to NASA Technical Standards products.

4.2.3.1 NASA Headquarters offices shall document and disposition all comments received from reviewers and provide the dispositions to all reviewers.

4.2.3.2 NASA Headquarters offices shall ensure that unresolved comments relative to NASA technical standards products are appealed to the next higher level of authority, leading up to the responsible NASA Headquarters office in accordance with the process for handling dissenting opinions in NPR 7120.5.

4.2.4 Process for maintaining and developing NASA Technical Standards products.

4.2.4.1 NASA Headquarters offices, or designees, shall:

a. Review their NASA technical standards products and document the results at least once every five years for relevancy, currency, technical accuracy and adequacy, conflict with or duplication of other requirements, changes in scope, and feasibility of replacing the existing NASA technical standards product with, or converting it to, a voluntary consensus standard and cancelling the NASA technical standards product.

b. Establish, document, and implement a process to control revalidation, revisions, and cancellation of NASA technical standards products.

Note: Configuration management of standards product documentation is applied in this process.

c. Maintain NASA technical standards products in accordance with NPR 1441.1, NASA Records Retention Schedules.

4.2.4.2 NASA technical standards product development for engineering shall follow the direction provided by the NASA Chief Engineer.

Note: The current directions for engineering standards products are provided at <https://standards.nasa.gov/documents/ProcessforNASA-DevelopedStandards.pdf>. Note:

Other NASA Headquarters offices, with the exception of the Office of Safety and Mission Assurance and the Health and Medical Office, may utilize the process specified in paragraph 4.2.4.2.

4.2.4.3 NASA technical standards product development for safety and mission assurance shall follow the direction provided by the NASA Chief, Safety and Mission Assurance.

Note: The current directions for safety and mission assurance standards products are provided at

http://nodis3.gsfc.nasa.gov/hq_isodetail.cfm?id=H_OWI_1410_GA000_002_E_.

4.2.4.4 NASA technical standards product development for health and medical shall follow the direction provided by the NASA Chief Health and Medical Officer.

Note: The current directions for health and medical standards products are provided at <http://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPR&c=8900s=1>.

4.2.4.5 NASA technical standards product development for information technology shall follow the direction provided by the NASA Chief Information Officer.

Note: The current directions for information technology standards products are provided at <http://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPD&c=2800&s=1>.

4.3 Designation of NASA-Endorsed Technical Standards Products

4.3.1 NASA Headquarters offices shall identify and approve NASA, voluntary consensus, and other Government technical standards products as NASA-endorsed technical standards products based on the following criteria:

- a. The technical standards product is approved in accordance with a documented, approved process and is reviewed and updated on a periodic basis;
- b. The technical standards product addresses common, high-level functions that need to be addressed by projects across or within a given program or elements across or within a given project;

Note: Applicability of NASA-endorsed technical standards products may be specified by the NASA Headquarters offices.

- c. The technical standards product uses best engineering practices representative of the most current proven technology;
- d. The technical standards product is widely accepted by discipline experts from industry, military, academia, and NASA to ensure proven, consistent, common practices in the discipline area are applied; and
- e. The technical standards product does not include program- or project-specific or Center documents, handbooks, laboratory procedures or processes, or procurement specifications.

Note: The list of NASA-endorsed technical standards products which resides at <https://standards.nasa.gov> will be updated as necessary using the above criteria.

4.3.2 Technical standards products whose use is required by a higher-level document (e.g., NPD, NPR, other required NASA-generated technical standards product (not a

voluntary consensus standard), or by Federal law/regulation/statute) by the use of a "shall" requirement (or equivalent requirement designation) shall be designated as "NASA-endorsed, mandatory standards."

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